ORIGINAL

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BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS
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IN THE MATTER OF THE APPLICATION OF ARIZONA PUBLIC SERVICE COMPANY FOR A HEARING TO DETERMINE THE FAIR VALUE OF THE UTILITY PROPERTY OF THE COMPANY FOR RATEMAKING PURPOSES, TO FIX A JUST AND REASONABLE RATE OF RETURN THEREON, TO APPROVE RATE SCHEDULES DESIGNED TO DEVELOP SUCH RETURN.	DOCKET # E-01345A-16-0036 **POST-HEARING BRIEF**
IN THE MATTER OF FUEL AND PURCHASED POWER PROCUREMENT AUDITS FOR ARIZONA PUBLIC SERVICE COMPANY	DOCKET # E-01345A-16-0123

Warren Woodward ("Woodward"), Intervenor in the above proceeding, hereby submits his Post-Hearing Brief.

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I. INTRODUCTION

Firstly and most importantly in this Brief, Woodward introduces ground-breaking new evidence that proves everyone's health is being affected by "smart" meters. This evidence is a world first, and shifts the debate from whether anyone should have to pay a fee to refuse a "smart" meter to: ***When does the safety recall start?***

Woodward will discuss other "smart" meter related topics throughout this Brief but ultimately, because of this new evidence, those topics are all now irrelevant. The only relevant issue now is how soon a safety recall starts.

Neither Arizona Public Service Company ("APS") nor any of the Settlement Agreement signatories have met their burden of proof to show the Settlement Agreement is just, reasonable or in the public interest. Woodward proved that at Woodward 7, and in this Brief will continue to show that assertions made by APS regarding "smart" meters, both in written testimony and on the witness stand, remain unsubstantiated or just plain wrong. Similarly, Arizona Corporation Commission ("ACC") Staff have not done due diligence in examining those assertions. In contrast, Woodward has provided both expert witnesses and reliable evidence to make his points, and will continue to do so in this Brief.

While the thrust of this Brief is on matters related to "smart" meters, Woodward will touch on the injustice of a few aspects of the rates proposed in this case, and the injustice of the Settlement process itself.

II. THE PROPOSED FEES FOR CUSTOMERS WHO REFUSE "SMART" METERS ARE EXTORTION.

II.A "Smart meters are now a proven public health hazard and must be recalled immediately. Any payment to refuse a "smart" meter is extortion.

Woodward takes great pleasure in introducing new evidence just discovered that proves "smart" meters adversely affect the human heart. This evidence is captured on video and was uploaded to YouTube yesterday. *EKG Proof That "Smart" Meters Affect the Human Heart* is here: https://www.youtube.com/watch?v=p-aNRQNRtaI&t=2s (or, if you have the hard copy of this Brief, see Exhibit A for the DVD).

In the video you will see Woodward connected to an EKG monitor while resting near an Elster "smart" meter of the type used by APS. While there is cellular telecommunication coverage at the rural location in which Woodward rests, it is low intensity and there are no other sources of EMF in the vicinity. Electric power to the bedroom is off at the breaker panel. Power to the "smart" meter is controlled outside of Woodward's sight and hearing such that Woodward does not know when the "smart" meter is activated. Activation is verified by a Gigahertz Solutions HF59B microwave analyzer (connected to an NFA 400 data logger) with the volume off so that, again, Woodward does not know when the "smart" meter is activated. Woodward would not know how to manipulate his heart rhythm anyway, but these steps were taken to insure a proper test. Woodward is not on medication of any sort, nor does Woodward have a heart

condition or any history of one. Yet when the "smart" meter transmits, the EKG shows that Woodward's heart rhythm is interrupted. Looking at the results of the EKG is startling. *EKG Proof That "Smart" Meters Affect the Human Heart* shifts the debate from whether anyone should have to pay a fee to refuse a "smart" meter to: ***When does the safety recall start?***

Woodward will continue to discuss other "smart" meter related topics throughout this Brief but ultimately, because of this new evidence presented, those topics are all irrelevant now because ***"smart" meters are affecting everyone's health.*** **Even if people are not showing outward symptoms, their bodies are being unnecessarily and involuntarily stressed by "smart" meters.** ***There must be a complete safety recall of all "smart" meters at once.***

II.B <u>APS mistakenly relied on the bogus ADHS study.</u>

Despite Woodward's thorough debunking of the alleged safety of "smart" meters at Woodward 6, pages 27 to 32, APS witness Scott Bordenkircher ("Bordenkircher") mistakenly insisted at APS 10, pages 6 and 7, that "smart" meters pose no health risk to customers. Bordenkircher's claim rests on the 2014 Arizona Department of Health Services ("ADHS") "smart" meter study. Bordenkircher wrote:

> The resulting report published in November 2014 confirmed that the meters tested were operating within Federal Communications Commission's (FCC) standards. .... RF transmissions of the type utilized by AMI are regulated by the FCC, and APS's AMI meters fully comply with all FCC regulations. (APS 10, 6:21-25)

Several things are wrong with what Bordenkircher wrote. First of all, there are no FCC "standards." As Woodward explained at Woodward 6, page 28:

> As for the metering technology being FCC-compliant, that is another irrelevancy. The FCC has established guidelines for protection against the thermal effects of radio frequency exposure. Those guidelines are *not* safety standards. That is acknowledged in an FCC document entitled, *Consumer Guide, Wireless Devices and Health Concerns*, the very first line of which states that "... there is no federally developed national standard for safe levels of exposure to radiofrequency (RF) energy…" (Exhibit N).

Additionally, with the cheap, inaccurate measuring device used in the ADHS study, confirmation of *any* kind of compliance with *anything* was an impossibility. See Woodward's YouTube video, *Video Exposé - The ADHS "Smart" Meter Study Is Grossly Inaccurate*, (here: https://www.youtube.com/watch?v=XRkfucJzrEk) for a comparison of the Tenmars TM-195 employed by the ADHS with more expensive and professional measuring equipment. In the video, the Tenmars is proved useless as a measuring device. As well, see Exhibit B which is two of the ADHS study's "smart" meter measurement worksheets obtained via a public records request. As a control, analog meters were measured for Radio-Frequency ("RF") in addition to "smart" meters. Note that on these two worksheets, the analog meters measured were recorded on the worksheets as having emitted microwaves, an absolute impossibility because the analog meters had no transmitter! Yet none of the ADHS study authors nor the person measuring realized their error. The study was fraught with other basic and obvious errors, glaring omissions, misrepresented scientific studies and cherry picked data (see

Woodward 15 for an in depth analysis). In short, the ADHS study is a worthless fraud. The study and its bogus measurements are nothing to hang one's hat on as Bordenkircher has done.

II.C APS put ignorance on display, and did not understand the basics about dirty electricity and its effect on human health.

Forensic electrical engineer and witness Erik Anderson ("Anderson") established there are kilohertz frequencies in the 2 to 50 range that "smart" meters emit (Woodward 4). Witness Dr. Sam Milham, MD, MPH ("Milham") established that those frequencies are biologically active and detrimental to human health (Woodward 5). Yet Bordenkircher claimed:

> The electrical noise measurements supplied by Mr. Anderson are very small. The highest noise magnitude he has identified is 0.085 Volts, but this represents only 0.05 percent of the normal 60 Hertz voltage signal. This extremely small quantity of noise is insignificant and does not cause any problems for the system or customers. Additionally, APS conducted its own measurement, but was unable to duplicate the magnitude of Mr. Anderson's measurements. APS tests showed no measurable impact on the normal 60 Hz waveform.
> (APS 10, 9:2-8)

What Bordenkircher refers to as an "extremely small quantity of noise" is *not* "insignificant," and it *does* cause problems for customers. As Milham explained about the specific frequency and intensity that Bordenkircher referenced:

> A. That's a very biologically active frequency. And the amplitude or the intensity of the -- how many millivolts?
> Q. 85 millivolts.
> A. Well, that would be -- that would give you approximately 100, 170 micro

> amps of current in your body if you are exposed to it. And there is very good evidence of anything above 18 is a chronic carcinogen, so it is very biologically significant.
> (Tr. at 926:1-9)

Bordenkircher's inability to duplicate Anderson's measurements is not surprising. Under cross examination, Bordenkircher showed himself to be extremely ignorant of the entire subject matter. Bordenkircher had little understanding of the inner workings of a "smart" meter (Tr. at 740, 741). Bordenkircher was unable to define harmonics or transients (Tr. at 662 & 663:23-2). Nor did Bordenkircher know what conducted emissions are (Tr. at 743:21-22). Conducted emissions are what Anderson tested for, and what APS supposedly tested for, but APS witness Bordenkircher did not even know what they are! Bordenkircher also showed himself to be completely ignorant of APS's testing protocol as several questions about same were answered with "I do not know." (Tr. at 754, 755) Contrast Bordenkircher's pitifully inadequate showing on this subject, both at APS 10 and on the witness stand, with that of Woodward who provided truly expert information and documentation via his witnesses, Anderson and Milham. Woodward has met the burden of proof; APS has not.

Getting back to Bordenkircher's statement cited above that "RF transmissions of the type utilized by AMI are regulated by the FCC, and APS's AMI meters fully comply with all FCC regulations," it needs to be pointed out that the 2 to 100 kilohertz frequencies are *not* regulated by the FCC *at all*, nor were those frequencies considered in the ADHS study. ADHS could not have found those frequencies anyway since the

Tenmars measuring device used in the study does not measure down to that range (see the Tenmars product description at Exhibit C).

As an instructive side note, to see a video on the lay discovery that led to Woodward getting highly credentialed experts to testify as his witnesses in this case regarding those kilohertz frequencies, watch Woodward's YouTube, *Nerve Disrupting Frequencies Radiating from "Smart" Meters* here https://www.youtube.com/watch?v=4NTSejgsjTc .

II.D Remarkably, and despite all the proof to the contrary, APS insisted "smart" meters are not surveillance devices.

At Woodward 6, pages 15 to 21, Woodward proved that "smart" meters are surveillance devices. As proof, Woodward used an exhaustive report by the Congressional Research Service, the findings of which were corroborated by Smart Grid News, NARUC and Politico, "smart" meter manufacturer Elster, and even APS itself. In case that's not enough, see Exhibit D for the press release of ONZO, a utility data analytics company. ONZO's chief data scientist, Dr. Katie Russell, brags that:

> Millions of AMI data points and hundreds of thousands of additional metrics and values can now be combined and analyzed, taking utility customer data mining to a whole new level and driving decision-making capabilities that weren't even possible before.

That "whole new level" includes determining:

- Which customers typically use high-consuming appliances during peak load times between 6 p.m. and 8 p.m. and should thus be contacted with a suggestion that they precool their home to prepare

for a DR event....

- Where are the biggest concentration of customers that are most likely to respond to a smart thermostat offer based on analysis of occupancy, consumption and demographic characteristics....
(Exhibit D, p 2 of 2)

And don't miss ONZO's creepy minute and a half long YouTube video in which ONZO brags, "We even tag the appliances we see being used in the home." Search YouTube for *About ONZO* or go here: https://www.youtube.com/watch?v=uluKjzqHDz0

Neither at APS 10 nor in his oral testimony did Bordenkircher refute any of Woodward's authoritative sources. Instead Bordenkircher resorted to specious argument, outright falsehood and empty platitudes like "APS takes the security and privacy of its customers extremely seriously." (APS 10, 5:7-8) Bordenkircher stated:

> … APS complies with all Commission regulations, approved rate and service schedules, state statutes, and federal regulations regarding privacy and security of customer information.
> (APS 10, 4,5:27-2)

"Privacy of customer information" is not the issue. The issue is whether a "smart" meter is a surveillance device. Besides, "privacy of customer information" is a ruse. Once a surveillance device is in place, *privacy* is lost. The issue then becomes whether the formerly private information will be *confidential*. As well, the issue is not whether APS actually uses the meter as a surveillance device, but if the meter has that capability. Woodward has proved that it *does* have that capability.

When asked (at Tr. 663 & 664:22-14) if APS still stood behind this unequivocal APS statement, "The automated meters give APS no indication of who our customers

are, what they are doing, nor can they determine what appliances customers are using," Bordenkircher replied:

> I can tell you that, in general, the intent of the answer or the statements made on that sheet were to let customers know that, though they had been hearing that there were certain things that APS could know about, for instance, what they were watching on TV, what small appliances they were using, things of that nature, our statement still holds true. APS does not know and cannot know what those types of things are and what is going on in the home at that level.
> (Tr. at 664:17-25)

First of all, Woodward did not ask about APS's "intent." Secondly, according to the authoritative sources I mentioned above and cited at Woodward 6, Bordenkicher has not been truthful regarding what APS "cannot know." APS (or hackers) *can* in fact disaggregate "smart" meter data and know how customers use electricity. In sum, payment to avoid surveillance or the possibility of surveillance is extortion.

II.E <u>APS relied on empty platitudes to defend "smart" meter cybersecurity risk.</u>

Bordenkircher's cybersecurity argument similarly fails. Once again, using authoritative sources such as the Congressional Research Service and others, Woodward proved at Woodward 6, pages 21 to 23, that "smart" meters pose a cybersecurity risk for which no one should have to pay a fee in order to avoid. Bordenkircher, once again, resorted to empty platitudes instead of independent evidence. Bordenkircher:

> APS has been maintaining the cyber security of its critical systems and its customer's privacy for decades.
> (APS 10, 5:6-7)

Probably every company that's ever been hacked could claim similar. Besides, as

they say in the investment world, *past performance is no guarantee of future results*.

Bordenkircher:

> APS has deep and extensive experience in this area and carefully assesses and mitigates cybersecurity risks, **including those brought about by the addition of new technology.**
> (APS 10, 5:8-10, emphasis added)

That's another empty platitude, this time however including an inadvertent admission that the "addition of new technology" – ie. "smart" meters – has created a new cybersecurity risk for customers, a point made by Woodward!

Bordenkircher made another of Woodward's points with this statement:

> APS cannot control whether and how third-party bad actors attempt to engage in illegal activity, regardless of which technologies it employs.
> (APS 10, 4:21-22)

Precisely, which is why APS's foolish and unnecessary introduction of this added cybersecurity risk to customers is something no customer should have to pay to avoid.

II.F <u>APS was untruthful and in denial about "smart" meter fires.</u>

Regarding fires alleged to have been caused by APS "smart" meters, Bordenkircher stated at APS 10, 5:18-20, that:

> … in all of these instances, a root cause external to the meter itself, such as broken or loose meter clips or defective wiring at the location, was determined to be the cause of the fire.

That statement of course is at odds with the fact that one fire in the APS service territory is currently being litigated, and the fire's cause has not been determined. (Woodward 3-3) That fact was pointed out to Bordenkircher when he was under cross

examination, and he was then asked if his statement above was therefore true. (Tr. at 667,668) In a stunning example of denial, Bordenkicher replied:

> So I maintain that my testimony was absolutely true. The fact that a root cause was conducted and to the company's satisfaction proved that the meter was not at fault, that is the answer given in my testimony. I think that's notwithstanding any lawsuit that an insurance company may or may not have with another third party. I don't find those two in conflict. (Tr. at 668:3-9)

In other words, it does not matter what a court of law might determine; where truth is concerned, APS's own "root cause" investigation is enough, and "the company's satisfaction" is all that matters.

Regarding "smart" meter fires, the oral testimony of witness and forensic electrical engineer, Erik Anderson, on the subject is worth quoting in full.

> Q. Have you ever heard of smart meters causing fires?
> A. Oh, yes, sir.
> Q. Why would a smart meter catch fire?
> A. Typically due to a breakdown of some of the components internal to the smart meter. And the energy that's available to those components then can cause ignition to the combustibles internal to it. And then that ignition then transfers to other combustibles in the building.
> Q. Have you ever investigated any smart meter fires?
> A. Yes, sir, I have.
> Q. Based on what you know about smart meter fires, if a customer did not want a smart meter because they were afraid of fire, do you think that's an irrational fear, or a fear, you know, a fact-based fear?
> A. Well, I believe that would be up to the individual, but it -- to minimize their risk, this certainly would be something to consider, yes.
> (Tr. at 784 & 785:24-15)

As Woodward detailed at Woodward 6, pages 23 and 24, fires and the threat of fires are a legitimate, serious concern to customers, and there have been hundreds of

thousands of fire-related "smart" meter recalls across North America. Any payment required of customers who refuse a "smart" meter in order to avoid fire or the threat of fire is extortion.

II.G More APS ignorance and denial on display, this time regarding the harm or threat of harm that "smart" meters pose to appliances and electronics.

At APS 10, 5:23-24, Bordenkircher asserted unequivocally that "... APS has no evidence of AMI meters damaging other customer appliances or electronics." Yet when read a complaint filed at the ACC from a customer whose burglar alarm malfunctioned repeatedly after a "smart" meter was installed and only righted itself after the 'smart" meter was removed (Tr. at 669, 670), Bordenkircher rationalized his "no evidence" statement thus:

> So I am not in a position to comment on any singular customer's complaint. Based on solely what you read to me, again, it sounds like there may or may not have been an interference issue that was resolved. I do not believe that it sounded like ultimately the individuals's property was damaged, which is what that first sentence you just quoted states.
> (Tr. at 670:17-23)

So Bordenkircher *was* in a position to make his "no evidence" statement but *not* in a position to comment on a complaint that proved his statement false. Additionally, Bordenkircher rationalized the damage done to the customer's burglar alarm (as well as the customer's quality of life which Bordenkircher did not even consider) while the "smart" meter was installed as not being damage but "interference," and he seemed to overlook the fact that resolution of the issue was to remove the "smart" meter.

At Woodward 4, witness Anderson found and documented high frequency voltage transients that APS "smart" meters place on wiring. According to Anderson:

> … transients are usually what cause the most damage to electrical components and to insulation systems because they -- there is a peak that increases very sharply and then decreases sharply. And it is the amplitude of that peak that can cause the breakdown of the insulation and cause failures of electrical devices.
> (Tr. at 787:20-25)

When asked "Could the presence of higher frequencies piggybacking on the 60 hertz wave create premature aging or damage to appliances and air conditioners?" (Tr. at 784:11-13), Anderson answered:

> Well, it is my belief that the degrading factor is the transients that can be generated due to the smart meter that will potentially break down the insulation on the conductors and the motors and things like that, and also cause failures in electrical components that may be subject to those transients. So that certainly is a possibility, yes.
> (Tr. at 784:14-20)

Astonishingly, when asked in cross examination (Tr. at 663:1-2), Bordenkircher could not even define "transients," but he was still confident that "our meters do not have any negative effects on power or wiring in a home." (Tr. at 663:5-7)

"Smart" meter related damage to, and interference with, customers' appliances and electronics is real. Customers seeking to avoid that harm or threat of harm by refusing a "smart" meter should not have to pay a fee of any amount. Any such fee is extortion.

II.H <u>APS mistook a computer for a meter.</u>

At pages 26 and 27 of Woodward 6, Woodward explained in detail that APS

"smart" meters are not just measuring devices, but also computers, radio transceivers and relay antennas. Indeed, Woodward documented that the I.R.S. classifies "smart" meters not as meters but as computers.

At APS 10, page 6, Bordenkircher asserted that Woodward's argument was "flawed." Bordenkircher cited A.A.C. R14-2-201(25) that states a meter is "the instrument used for measuring and indicating or recording the flow of electricity that has passed through it." Bordenkircher then claimed that "This is precisely the key function of AMI meters." (Tr. at 6:8)

A.A.C. R14-2-201(25) gives a true definition of a meter, however upon examination it is clear that a "smart" meter does not fit that definition because the meter is actually network management and communication equipment that *contains* a meter. Indeed, Exhibit E from the Lawrence Berkeley National Laboratory is an exploded-view drawing that demonstrates a "smart" meter has in fact *five* key functions, not *one* as Bordenkircher claimed. Metering is only one key function – precisely why the I.R.S. does not classify a "smart" meter as a meter.

Woodward and the I.R.S. are not alone in their assessment that "smart" meters are not meters but computers. Regarding "smart" meters, Bennett Gaines, Senior Vice President, Corporate Services and Chief Information Officer of FirstEnergy (the nation's largest investor owned utility with 6 million customers) testified in October, 2015 before a joint hearing of the U.S. House Subcommittee on Energy and the U.S. House

Subcommittee on Research and Technology that "These devices are now computers." (See him say it at 1:40:45 in the hearing's video minutes, here: https://science.house.gov/legislation/hearings/subcommittee-energy-and-subcommittee-research-and-technology-hearing or search YouTube for *Hearing: Cybersecurity for Power Systems (EventID=104072)*)

In sum, as Woodward stated at Woodward 6, pages 26 and 27:

> Placement of a computer, radio transceiver and relay antenna (of any size) on anyone's private property without permission or compensation is trespass and theft. The fees proposed in the Settlement Agreement for customers trying to avoid this theft, this trespass, by refusing a "smart" meter is extortion.

II.I APS resorted to empty assertions and cherry picking to defend inaccurate "smart" meters.

At Woodward 6, Woodward cited two published studies that proved "smart" meters are inaccurate, one from 2010, the other from 2016. Attempting to debunk what the studies proved, at APS 10 Bordenkircher chose to address *only* the 2010 study saying:

> It is important to note that this paper was written in May of 2010 – a full seven years ago. Since that time, grid technology has evolved dramatically. AMI is now a mainstream metering system no longer subject to the "startup" technology type issues that are the thrust of the EPRI white paper. Mr. Woodward's selective citations regarding certain specific failures of advanced meters, in my opinion, do not reflect the intent or the conclusion of the white paper....
> (APS 10, 10, 11:19-2)

When questioned why he chose to address only that study and not also the more

recent one that proved nothing had changed since 2010, part of Bordenkircher's lengthy answer was that:

> So there was a relatively large quantity of exhibits filed by yourself. Again, we chose those we thought more appropriate.
> (Tr. at 762:2-4)

That is totally disingenuous. Yes, Woodward filed many exhibits to substantiate points made in his testimony, but the section of Woodward 6 on meter inaccuracy only dealt with two exhibits. Indeed, the one ignored by Bordenkircher started the section and was quoted and referred to as much as the one from 2010. In the quote above from APS 10, Bordenkircher called my citations of the 2010 paper "selective," yet it was Bordenkircher who dishonestly cherry picked an older study from a recent one to make a bogus point about 'technological evolution' when in fact there has been *no* evolution as the more recent paper proved. "Smart" meters were found to be just as inaccurate in 2016 as they were in 2010, if not more so. In short, Bordenkircher's assertion that "AMI is now a mainstream metering system no longer subject to the start-up technology issues" (Tr. at 761:17-19) was disproved by the more recent study he conveniently ignored.

It is worth noting that several times during this part of cross examination Bordenkircher touted APS's meter testing procedure.

> … from APS's own personal experience and experience of their manufacturers and vendors, they test all meters that they send. We test a sample of all the meters we are sent, and we can therefore justifiably say that they are accurate.

(Tr. at 761:6-11)

> … based on our experience with the meters we use and the vendors we use and the test processes we go through, our meters are accurate.
> (Tr. at 762:7-10)

> … we believe our meters to be accurate. And, again, I have stated the steps we go through to ensure that.
> (Tr. at 762:16-17)

But when asked previously during cross examination if APS had a meter testing program that includes a yearly report to the ACC (a program which APS *does* have; see Exhibit F), Bordenkircher answered, "I do not remember if we do or don't, sir." (Tr. at 751:10) So in sum, Bordenkircher is not a credible witness. Woodward substantiated his point that "smart" meters are inaccurate with published papers. Bordenkircher made empty assertions, cherry picked and does not even know if his company has a meter testing program. No customer who refuses a "smart" meter to avoid the harm or threat of harm of billing inaccuracy should have to pay a fee of any amount.

III. DICRIMINATION AGAINST CUSTOMERS WHO REFUSE "SMART" METERS IS STILL AN ISSUE. APS CLAIMS TO THE CONTRARY ARE SPECIOUS, ILLOGICAL AND UNSUBSTANTIATED.

Both at Woodward 1 and Woodward 6, Woodward has reasoned that any proposed extra fees for customers who refuse "smart" meters is discriminatory. APS has not disproved that. Under cross examination, APS's Barabra Lockwood ("Lockwood") resorted to non-answers, redefining words, illogic and, in one instance, she actually

agreed with Woodward's argument!

III.A APS selectively applied cost causation principle and proved Woodward's point regarding bi-lingual service.

At APS 3 (p. 9:17-20), in reference to customers who have refused "smart" meters, Lockwood asserted:

> APS incurs more cost to provide the same level of service that APS provides to customers with AMI. APS believes that it is reasonable to assign some of that additional cost to these customers consistent with the ratemaking principle of cost causation.

Yet when confronted at the hearing (Tr. at 144-146) with the dollar amounts for bi-lingual accommodation that stretch back years, and when questioned why, in a state where English is the official language according to its Constitution, the principle of cost causation did not apply to those accommodated customers, Lockwood gave a non-answer that basically consisted of repeating the question, to wit:

> … we have provided bilingual services to our customers for a number of years. We have never proposed to assign those costs to customers who do not speak English.
> (Tr. at 146:7-10)

In short, Lockwood made Woodward's point. She did not refute it.

III.B Regarding the home energy check-up, APS proved Woodward's point again that the cost causation principle is selectively applied.

When asked why the principle of cost causation did not apply to customers who caused additional costs by getting a home energy checkup subsidized by other APS

customers who do not use the service (Tr. at 146, 147), Lockwood, again proving Woodward's point that the principle of cost causation is discriminatively applied, replied that it was a "policy that was adopted by the Commission a number of years ago." (Tr. at147:19-20)

III.C When it comes to communicating with customers, according to APS it's okay to suspend the principle of cost causation.

At Woodward 2-3, APS acknowledged that:

> Customers prefer varying levels of interaction with their utility and have preferences on how to receive information. The development of each communication avenue and the varied use of each avenue continues to develop and each has a different cost.

Yet when questioned why, in concordance with the principle of cost causation, APS does not seek extra money from customers whose communication preferences cost more than others (Tr. at 148, 149) Lockwood answered

> … the outreach in education that we provide is multi-layered so that we reach many customers.
> (Tr. at 149:9-12)

So, essentially what Lockwood is *really* saying is that the principle of cost causation is suspended if it is in conflict with APS's business plan, and that it's okay to discriminate in the application of the principle.

III.D APS tried to redefine words to justify the discrimination inherent in having two different conditions of service.

Regarding APS 29, Service Schedule 1 § 8.5, when asked why customers who

refuse "smart" meters should be discriminated against by being subject to different conditions of service – conditions that include not being able to refuse a "smart" meter if an APS employee receives threats from the refusing customer, Lockwood replied that this was a security provision needed since APS employees would be visiting that customer's property to read the meter (Tr. at 149-152). Woodward pointed out that, due to APS's easement, customers using "smart" meters could also have interaction with an APS employee, and therefore could just as likely issue threats, yet those customers had no similar condition placed on them. When asked how two different conditions of service is not discrimination, Lockwood answered:

> … we take threats to our employees' safety very seriously across the board for any customer that we may encounter or have an issue with.
> (Tr. at 151:15-17)

Because Merriam-Webster defines "across the board" as "so as to include or affect all classes or categories," Woodward replied:

> It would seem to me that "across the board" would mean all customers who are getting all kinds of different rates and different meters and different whatever. If it's across the board, it's across the board or it's not across the board.
> (Tr. at 151 & 152:22-1)

Redefining "across the board," Lockwood maintained her position:

> It is absolutely across the board....
> (Tr. at 152:2)

APS should not be allowed to discriminate against customers who refuse "smart" meters by redefining English to suit APS's purpose.

III.E APS used sophistry to defend discriminating against commercial customers, and APS agreed with Woodward but did not realize that made the APS position untenable.

According to Woodward 2-4 and 2-5, as of September 30, 2016, APS has 2,338 commercial customers who have refused smart meters as well as 1,844 commercial customers who, due to their remote location, cannot have a smart meter even if they wanted one. Yet APS 29, Service Schedule 1 § 8.3, would disallow commercial customers from refusing a "smart" meter. Asked to explain this discrimination against commercial customers who would like to refuse a "smart" meter, Lockwood said:

> Business customers are often on more complex rates. They have more choices available to them with a standard ["smart"] meter. They are -- oftentimes small commercial customers can change out frequently. It allows us to turn on and turn off remotely, and it provides more information that our business customers often want to manage their business.
> (Tr. at 155:4-10)

Woodward replied:

> So if the business customers wanted that more information, then they could get a smart meter if they wanted one. Obviously, the ones who have refused the smart meter don't give a hoot about more information. Wouldn't that make logical sense?
> (Tr. at 155:11-15)

Evidently not realizing that her response made her position untenable, Lockwood then agreed with Woodward by saying:

> Mr. Woodward, if they wanted more information, certainly.
> (Tr. at 155: 16-17)

Questioning further, Woodward asked:

> So getting back to your other reasons, you mentioned they have more complex rates. Well, they've had more complex rates. That's the whole point of my question is that you have people, you have commercial customers right now, 2,338 of them who don't have a smart meter, and everything is working hunky-dory with their more complex rates. Now, all of a sudden, you're changing that policy. I think -- don't you think you need better reasons than what you just gave me?
> (Tr. at 155 & 156:20-3)

Lockwood replied with an answer that does not meet APS's burden of proof:

> No, Mr. Woodward, I think our reasons are sufficient.
> (Tr. at 156:4-5)

In his hearing testimony, APS witness Bordenkircher rationalized the discrimination against commercial customers inherent in the Settlement Agreement with an argument that, based on current APS policy and the historical record, fails. Bordenkircher asserted that "smart" meters are a "foundational platform." (Tr. at 587:17) Bordenkircher went on to say:

> That foundation is based on visualization, or otherwise known as the data we can collect, and the knowing that we have of what is going on on feeders in terms of usage. That platform allows our ability to produce and continue to have the reliability that our customers expect. Commercial customers tend to be some of our largest customers. And so by potentially producing gaps in that data of that size, that has the potential for harming our overall reliability, including equipment overloads and things of that nature.
> (Tr. at 587 & 588:19-3)

If any of what Bordenkircher said was true then "overall reliability, including equipment overloads and things of that nature" would have been a constant problem in the many decades before the relatively recent implementation of "smart" meters.

Additionally, current APS policy is to allow commercial customers to refuse a "smart" meter. Indeed, as documented above, APS has 4,182 commercial customers without "smart" meters. If "reliability" was truly the problem Bordenkircher claimed, then it should have been easy for Bordenkircher to substantiate his claim with evidence. He did not. In short, the proof is in the pudding and APS's bowl is empty, while at the same time APS is dishing up a large portion of discrimination and sophistry.

III.F Nonsensical "logic" and "math" used to rationalize discrimination inherent in not charging some customers while charging others

According to Woodward 2-5, APS has 3,684 customers who, due to their remote location, cannot have a "smart" meter even if they wanted one. According to Woodward 2-6:

> The cost of providing meter reading service, including personnel, vehicles, computer systems, et cetera, are virtually the same, whether a meter reader reads a meter once a month or once every other month. Those costs are not dependent on the frequency of meter reads. They must be borne regardless.

Since APS established that meter reading costs are not dependent on the frequency of meter reads, and since APS must have a system in place anyway to read the meters of customers who cannot have a "smart" meter," Woodward asked

> … why other customers using that existing and necessary system should be charged extra fees that customers for whom the reading system exists are not charged, and why those extra fees are not discriminatory?
> (Tr. at 158:2-6)

Lockwood answered that:

> The response, I believe, in Woodward 2.11 [Woodward 2-6, above] was really specific to an individual customer. The more customers that we have to read their meters, the higher the costs are. It is not the same.
> (Tr. at 158:7-10)

In further questioning, Lockwood elaborated that the response in Woodward 2-6 was:

> specific to an individual customer and whether or not we had to read an individual customer's meter every month or every other month.
> (Tr. at 158:17-20)

So, essentially what Lockwood is *really* saying is that, with a manual meter reading service in place, it makes no financial difference if meters are read 6 times per year or 12 times per year, but it *does* make a financial difference if anything more than 3,684 meters are read. Put another way, since there were 16,568 customers who had refused "smart" meters in the Test Year (Woodward 13), reading those meters 6 times per year – 99,408 trips to the meter – costs the same as 12 months or 198,816 trips because, according to APS, meter reading costs are not dependent on the frequency of meter reads. *Unless* APS has to read the meters of those who refuse, in which case *any* number of reads greater than 44,208 incurs cost – 44,208 being the 12 month number of reads needed to serve the 3,684 who cannot have a "smart" meter. In short, Lockwood's answer is nonsensically illogical and not a basis upon which to discriminate against customers who refuse "smart" meters.

III.G <u>APS used faulty reasoning and speculation, not evidence, to rationalize discriminating against solar customers.</u>

APS used similar faulty reasoning to defend the Settlement Agreement's proposal

that solar customers not be able to refuse a "smart" meter (APS 29, Service Schedule 1 § 8.3). Both Lockwood and Bordenkircher stated APS *would* allow any of the 3,684 customers who cannot have a "smart" meter to have solar while at the same time no one else without a "smart" meter would be allowed to have solar. (Tr. at 160:2-6, & 759:17-24) Lockwood did not believe that was arbitrary discrimination, even though currently any APS solar customer can refuse a "smart" meter, and other utilities allow solar customers to refuse "smart" meters (Tr. at 159:2-7 & 160:7-8, Woodward 1at Exhibit C). Indeed, as Woodward pointed out at Woodward 6, page 11, Northeast Utilities, an electricity provider larger than APS in New England, is on record as stating unequivocally that "... metering systems are not necessary to integrate distributed resources." However, Bordenkircher asserted at APS 10 (9:25-27), that:

> One key reason for Northeast Utilities' negative AMI stance in their comments is due to the fact that the entity had already implemented automated meter reading, AMR, technology in their service territories at significant cost.

Bordenkircher's "one key reason" is pure speculation on his part. He offered no evidence for his "one key reason." Cross examination of Bordenkircher yielded no evidence either, only a repetition of his speculation. (Tr. at 755-758) Additionally, it is clear that Northeast Utilities did not take a "negative AMI stance" since Northeast referred to "*metering systems*" – as in *any kind* of metering system. As well, at Woodward 6, page 12, Northeast Utilities provided the solution for integrating solar without any kind of metering system, to wit:

> In order to allow for the integration of distributed resources, sensors and systems for advanced load flow models that allow for more distributed resources on a circuit can be installed.

In sum, not allowing solar customers to refuse a "smart" meter like they've been able to do for years is discrimination.

IV. "SMART" METER COSTS FAR OUTWEIGH BENEFITS

At Woodward 6, section III.D *The Settlement Agreement perpetuates a boondoggle*, Woodward proved in detail that "smart" meters are all cost and no benefit to ratepayers. Woodward will not be repeating all those arguments here but will discuss new, unsubstantiated and false claims made by APS regarding alleged benefits, as well as the pitifully inadequate testimony of ACC Staff witness Ralph Smith, and ACC Staff's lack of due diligence.

IV.A APS made numerous unsubstantiated claims regarding "smart" meter benefits.

At APS 9, the only "smart" meter benefit to ratepayers that Bordenkircher listed was: "For customers, AMI has increased the opportunity to gain more knowledge of their energy use" (APS 9, 7:14-15) – as if people don't know when the lights are on. Bordenkircher amplified on that claim at APS 10 and at the hearing, but, when questioned about his new claims, Bordenkircher could not substantiate them.

In an answer to Intervenor Richard Gayer, Bordenkircher testified that one customer benefit of "smart" meters was "... customers know more real-time and by hour what their usage is...." (Tr. at 604:18-19) However, in a previous answer to Richard

Gayer, Bordenkircher stated that usage information available to customers was "... certainly delayed anywhere from a day to a day and a half." (Tr. at 604:5-6) Because the Merriam-Webster dictionary defines "real-time" as "the actual time during which something takes place," Woodward asked Bordenkircher to define "real-time." Bordenkircher's answer was obfuscatory and an attempt at redefinition (Tr. at 605:13-23). Woodward supposes that Bordenkircher must think APS customers are either ignorant of what real-time means or are time travelers.

At APS 10 (3:15-16), Bordenkircher bragged that "This [day and a half old] data can be viewed on the Company's website aps.com, allowing customers to track and understand when and how they use electricity." Yet when asked by Woodward how many customers actually go the website and do that, Bordenkircher did not know. (Tr. at 656) So Bordenkircher's testimony that the day old data is a benefit was unsubstantiated both at APS 10 and at the hearing. Additionally, since it is doubtful many people go online to see what they did a day ago, this "benefit" is another cross subsidy from the majority of ratepayers who don't care about stale data to those few who do.

Similarly, Bordenkircher touted "individualized alerts regarding … energy usage and bill amounts" as another "smart" meter customer benefit. (APS 10, 3:16-19) And just as similarly, Bordenkircher's claim that these alerts are a "smart" meter benefit was unsubstantiated both at APS 10 and at the hearing. When asked how many customers received individualized alerts, Bordenkircher did not know. (Tr. at 657:10-17) But

nevertheless he was certain it is not another cross subsidy. (Tr. at 657, 658)

Similarly, Bordenkircher touted operational cost savings as a "smart" meter benefit "... because monthly meter reads, customer move-in/move-outs, and meter rate changes (customers changing from one rate to another) can now be conducted remotely." (APS 10, 3:22-24) And just as similarly, Bordenkircher's claim that cost savings are a "smart" meter benefit was unsubstantiated both at APS 10 and at the hearings. When asked what the dollar amount of the yearly cost savings was, as usual Bordenkircher did not know. (Tr. at 658:9-17) At APS 10 (3:21) Nor did Bordenkircher know what it cost APS to achieve those alleged "savings." (Tr. at 659:4-7)

Similarly, Bordenkircher touted reduced energy theft and fraud as a "smart" meter benefit. (APS 10, 3, 4:26-2) And just as similarly, Bordenkircher's claim that reduced energy theft and fraud are a "smart" meter benefit was unsubstantiated both at APS 10 and at the hearings. When asked, "Exactly how much energy theft and fraud has been reduced since APS installed smart meters? Do you have a dollar amount? (Tr. at 663:16-18), Bordenkircher replied, "I do not." (Tr. at 663:19)

Incredibly, in another stunning example of Bordenkircher's capacity for outright denial, when he was asked, "So your whole testimony just seems to be unsubstantiated, is that not true?," Bordenkircher replied, "I totally disagree. My testimony is substantiated." (Tr. at 658:18-21) Bordenkircher's foregoing record of repeated unsubstantiation shows that his answer was not truthful.

IV.B An APS witness discredited himself by being untruthful. Alleged "smart" meter benefits are by definition worthless.

Bordenkircher was also not truthful in a response to a question from the ACC Staff. When asked at the hearing about all the failed "smart" meters that APS was having to replace (Tr. at 763, 764), Bordenkircher said:

> … with respect to especially what has caused that large number being that manufacturing defect, it is in fact why APS made certain to ensure that the vendor bore the responsibility of the cost of those trade-outs, specifically to protect our customers from that.
> (Tr. at 764:2-7)

Yet at Woodward 3-1 and Gayer 15, Bordenkircher told different stories. To wit:

> c) Of the 32,000 meters mentioned above, 25,710 were covered under the manufacturer's warranty.
> d) **Customers bear the cost of meter replacements that are not under warranty.**
> e) In the period of September 2014 through December 2014, 17,788 meters were replaced for the same reasons as given in the Company's response quoted above.
> g) Of the 17,788 meters identified in the Company's response to subpart e, 13,620 replacements were covered under warranty.
> h) **Please see the Company's response to subpart d.** [Meaning customers paid for the ones not under warranty.]
> (Woodward 3-1, p. 2 of 2, emphasis added)

And:

> b. This specific communication issue was first identified in 2014 and **continues to be an issue today**, albeit a minimal one.
> d. The number of meters replaced due to this issue is as follows:
> 2014 – 19,203 meters replaced
> 2015 – 22,287 meters replaced
> 2016 (As of 10/2016) – 20,172 meters replaced
> e. The average in-service life of these meters at time of replacement was approximately 4 years.

> f. Yes, these meters are under warranty.
> h. Yes, under the terms of the warranty **some** installation costs were covered.
> i. **Any cost of installation during the test year not covered under the warranty is necessarily included in the Company's request.**
> (Gayer 15, p. 2 of 2, emphasis added)

In short, while Bordenkircher has the high sounding title of *Director of Transmission and Distribution Technology Innovation and Integration*, he is simply <u>*not*</u> a credible witness, and his list of "smart" meter benefits is nothing but hype. So-called "benefits" that have no dollar amount value are by definition worthless.

IV.C <u>The proposed 20 year "smart" meter service life is unsubstantiated fraud.</u>

At section III.D.1, Exaggerated Meter Life – Settlement Agreement Accounting Fraud, of Woodward 6, Woodward provided more evidence than anyone else in this rate case regarding the service life of "smart" meters (which wasn't hard because no one else presented any!). The Settlement Agreement's proposed 20 year service life for "smart" meters has not been substantiated. That was made even more evident during the hearing.

When asked about the proposed 20 year service life for "smart" meters, APS witness Bordenkircher gave an answer that was both evasive and revealing. Woodward asked:

> Regarding smart meter service life, at page 8, line 10 of APS-10, you stated that, quote, APS had proposed a 20-year service life in its depreciation rate study. Upon what is that proposed 20-year service life based?
> (Tr. at 752:1-5)

Bordenkircher answered:

> So the Arizona Corporation Commission set the depreciation schedules, and has in the past, for APS as it relates to this type of equipment. APS believed and proposed that that useful life or depreciation schedule should be lower than what it has been in the past. And **this was a term that was negotiated during the settlement agreement and was agreed to by the settling parties**, and now will be up to the Arizona Corporation Commission to rule on.
> (Tr. at 752:6-14, emphasis added)

Note that Bordenkircher never really answered the question. He never said upon what the proposed 20 year life was based. That is important because, as Woodward pointed out at Woodward 6, page 44, the Uniform System of Accounts Prescribed for Public Utilities and Licensees Subject to the Provisions of the Federal Power Act requires that "Estimated useful service lives of depreciable property must be supported by engineering, economic, or other depreciation studies." According to Bordenkircher's testimony, the proposed 20 year life was not based on any of the required studies but was instead "negotiated during the settlement agreement." But the Settlement process is not an evidentiary one. Studies are not needed to arrive at conclusions in Settlement. In short, the proposed 20 year service life for "smart" meters is accounting fraud.

That was corroborated by the testimony at ACC Staff witness Ralph Smith ("Smith"). Smith got off to a bad start during his questioning by Woodward when he was unable to say why, in APS's depreciation study, there was no investment remaining in account 370.02, electromechanical meters, as of December 31st, 2015 when there were still thousands of those meters in service at that time (Tr. at 1003 & 1004:10-14). That ACC Staff's witness was unable to answer that question reflects a lack of due diligence

on Staff's part that, as will be seen, was typical of ACC Staff and Smith throughout the "smart" meter service life issue.

By the way, the misrepresentation of account 370.02 is accounting fraud. It appears that must have occurred to ACC Senior Staff Counsel Maureen Scott ("Scott") since, during her redirect examination of Smith, Scott asked Smith a series of softball questions that allowed Smith to attempt to smooth over Staff's negligence regarding account 370.02. To wit:

> Q. And when you formulate your position on the various issues, you don't just automatically accept the data that's given you, do you?
> A. No. We try to verify all significant data.
> Q. So you would do your own independent analysis and verification of what you are given typically?
> A. **Typically** in a lot of the stuff that we obtain from utilities, I mean we view some of that with a degree of skepticism. We want to kick the tires on it and probe it and make sure that it is, it is good data that we can actually use.
> Q. And you don't, you or Staff, we don't recommend a position unless there is support for it, correct?
> A. That's correct. We try to make sure there is good support for all the Staff recommendations.
> Q. And then I believe there was a specific question regarding account 370.02 and the 2006 depreciation study showing no investment in that account. What possible reasons could there be for that occurring?
> A. **Typically** the reason would be that the existing investment in that particular sub account had all been retired.
> Q. Okay.
> A. Or another reason could be that it was replaced by -- in this case we are talking about a sub account for meters. So to the extent that was replaced by other types of meters, it would be moved into one of the other sub accounts of 370.
> (Tr. at 1071 & 1072:19-21, emphasis added)

One problem with Smith's answers is that his "typical" reasons for an account

being empty do not explain why account 370.02 was empty. And that of course points to the other problem with his answers which is that Staff obviously did *not* " verify all significant data," "make sure that it is ... good data," "kick the tires," or "make sure there is good support for all the Staff recommendations," else APS would not have gotten away with account 370.02 being empty when there are still thousands of 370.02 meters in service. In short, and as will be seen as we examine Smith's testimony further, he is not a credible witness nor has ACC Staff met the burden of proof for the 20 year "smart" meter service life that Staff supports in the Settlement Agreement.

In attempting to justify a 20 year "smart" meter service life, Smith used the same "Typically" misdirection ploy that he used above. The following Q & A during Woodward's cross examination of Smith is instructive:

> Q. So can you explain how getting comparables from other utilities' comparables that, like the service life of APS's smart meter, may be based on absolutely nothing satisfies the requirement that the estimation of useful service lives of depreciable property be supported by engineering, economic, or other depreciation studies?
> A. Well, **I think you are totally off base saying, suggesting that this is supported by nothing. The company provided a fairly detailed depreciation rate study by an industry acknowledged expert, Dr. Ronald White.** And **typically** in every one of these other utility rate cases where depreciation rates are being set, the rates are supported by a fairly extensive depreciation rate study by experts. And **typically** there is a number of experts that are looking at these studies and making appropriate comments and adjustments where needed.
> So I think it is based on best available knowledge. People can differ, you know, as to whether they think those estimates are reasonable. At this time, it does appear to affect the best industry expectations, of which we are aware, of the useful life of these AMI meters.
> (Tr. at 1011 & 1012:20-17, emphasis added)

What "typically" might happen in other utility rate cases is not evidence, nor does Smith's answer provide any. His answer is essentially a hypothetical. This rate case is a case in point as to why Smith's reasoning is specious. If the proposed 20 year service for "smart" meters is approved in this case, it will have been done without the required "engineering, economic, or other depreciation studies." Using an approved 20 year "smart" meter life in this rate case as evidence, then, in another case would be fraudulent, but according to Smith's reasoning, it would be legitimate.

The part in Smith's answer about APS providing "a fairly detailed depreciation rate study by an industry acknowledged expert, Dr. Ronald White" is more mendacious misdirection, and, as will be seen, betrays Smith's subsequent statements.

Note that Smith accused Woodward of being "totally off base saying, suggesting that this [20 year "smart" meter life] is supported by nothing." Note that Smith then used Dr. White's study as proof that Woodward was "totally off base." Now, note that at APS 1 (99:15-18), Smith testified that:

> The detailed analysis contained in Dr. White's workpapers for electronic meters, account 370.01 suggests that an average service life of less than 20 years could even be appropriate for that subaccount. **APS did not present similar analysis for account 370.03, AMI meters.**
> (emphasis added)

So, there *was* in fact "a fairly detailed depreciation rate study by an industry acknowledged expert, Dr. Ronald White," but it did *not* apply to "smart" meters, and so Smith was attempting to use it a proxy for a study on the "smart" meter account that

never happened.

In a subsequent Q & A, Woodward asked Smith why Staff accepted Dr. White's study on account 370.01 as a proxy for account 370.03. Smith then replied that Woodward "might be getting mixed up," and that "implying" 370.01 was "somehow extrapolated" to 370.93 was "inaccurate." (Tr. at 1013 & 1014)

So Dr. White's study on account 370.01 was a proxy for account 370.03 when Smith wanted it to be, but wasn't when he didn't want it to be!

"Smart" meter service life is a major component to the cost/benefit analysis that Staff was supposed to perform in this case according to Finding of Fact 23.h of ACC Decision #75047 that called for "A comparative analysis of the costs and benefits of smart meters as opposed to the costs and benefits of analog meters." Clearly Staff has not complied with that Decision because their proposed 20 year service life has not been supported by "engineering, economic, or other depreciation studies."

Additionally, Smith claimed Staff had complied with Decision #75047 by rattling off numerous APS documents Staff had considered (Tr. at 1025, 1026). In addition to missing a correct "smart" meter service life in that consideration, and having a fraudulent analog account in that consideration, "smart" grid costs such as those for data storage, additional cybersecurity, software licensing fees, were missing as were the costs of alleged "benefits" such as having day old data that few look at posted to APS.com, and "individualized alerts" for the few who want that.

V. RUCO DOES NOT REPRESENT RESIDENTIAL CUSTOMERS

At Woodward 7, section III.B *RUCO's sophistries, spin and outright falsehoods*, Woodward, using RUCO's own statements, detailed at length that the positions the Residential Utility Consumer Office ("RUCO") advocated in support of the Settlement Agreement indicated that RUCO is basically an elitist agency completely oblivious to, and out of touch with, the residential ratepayers it supposedly represents. RUCO director David Tenney ("Tenney") proved Woodward's points on the witness stand. There Tenney admitted that, to his knowledge, RUCO had *never* taken a survey of residential ratepayers to determine exactly what they wanted in a rate case (Tr. at 1090:16-19). Confirming that elitist, RUCO-knows-best mentality, Tenney also admitted that

> At RUCO we do not believe it was a good thing necessarily to try to go to the ballot and let people decide to put something in the constitution regarding net metering.
> (Tr. at 1096 & 1097:25-3)

Yes, Heaven forbid that the people should be allowed to decide something.

Tenney also admitted that even a minimal increase in rates – the minimal increase RUCO supported in the Settlement Agreement – could have a financially devastating effect on customers who have not seen a COLA increase in years (Tr. at 1090:12-15). To apply Tenney's faux-folksy Neapolitan ice cream analogy for the Settlement process – in which the Settlement Agreement was presented as maybe not the desired flavor but still ice cream (Tr. at 1094, 1095) – it appears those residential customers were thrown under Tenney's ice cream truck and only got a stale, empty cone with no COLA to wash it

down.

In sum, RUCO does *not* represent residential customers and so should be ignored in this preceding.

VI. EVIDENCE OF ABINAH'S PRO-APS BIAS EXPLAINS THE PRO-APS SETTLEMENT AGREEMENT

At both Woodward 6 and Woodward 7, Woodward presented many reasons why the Settlement process was fatally flawed. So Woodward will not be reiterating those here. Woodward will, however, state that he supports the arguments made against the Settlement Agreement by Intervenors Electrical District Number Six, Electrical District Number Seven, Aguila Irrigation District, Tonopah Irrigation District, Harquahala Valley, Electrical District Number Eight, McMullen Valley Water Conservation & Drainage District, and Richard Gayer. As well, Woodward will add one more reason he is against the Settlement, a reason that totally supports the contention made by Woodward on the witness stand that the ACC is a captured agency, and that as such, these deliberations are farcical (Tr. at 984, 985).

While on the witness stand, ACC Utilities Division director Elijah Abinah ("Abinah") attempted to present himself (and Staff) as an objective and impartial judge. He made statements such as:

> … Staff has nothing to lose, nothing to gain. Staff's role is to make recommendation to the Commissioners, make the most informed decision, make the most informed recommendation that Staff believes is just, fair and reasonable. We don't take sides. We look at the information, look at the information provided. We make our analysis and make recommendations.

(Tr. at 1275 & 1276:22-4)

and:

> … my goal and my role is to review and analyze the application and make the appropriate recommendation.
> (Tr. at 1304:11-13)

But at one point Abinah slipped up and made a startling admission. He said

> When a new customer comes into APS service territory, there's no information, there's no usage, there's no data. **So we don't know what rate structure to put them on.**
> (Tr. at 1268:14-17, emphasis added)

"*We*?" "*We* don't know what rate structure to put them on?"

Does Abinah work for APS now? It certainly sounds like he does. It is also probably the most blatantly elitist thing said throughout this entire rate case.

If a customer cannot choose their own rate plan then they are not customers, they are captives.

After this gross display of pro-APS bias and elitism, Abinah's recommendations are no longer worth listening to, and his analysis cannot be trusted.

Abinah's blatant bias explains a great deal about the Settlement Agreement. It explains why Staff supports the totally unjust mandatory 90 day period in which new customers must be captives to Demand or TOU rates (APS 29 § 19.1) despite Staff being made aware of the published studies Woodward provided at Woodward 1 & 6 that show how devastating those rates can be to customers who can least afford it. And it explains why APS was given a subsidy of $5 million to blow on "educating" customers when

really it's APS and Staff who need educating. It explains why even though APS would get $5M to "educate," there is no stipulation that APS educate new customers as to their options after their 90 days in captivity. And along those lines, Woodward is in support of the arguments of Intervenors AARP and the Southwest Energy Efficiency Project to lessen the basic service charges on the Standard rates, liberate new customers from their 90 days in captivity, and hold APS accountable for true customer notification.

VII. CONCLUSION

For all the reasons expressed herein as well as in Woodward 1, 6 and 7, and also for all the reasons made by the previously mentioned Intervenors, the Settlement Agreement must not be approved. APS should not get $5M to waste on what will likely be overpriced self-promotion and biased nonsense. The 90 day captiviy period must be removed. Basic service charges must be lowered. And really, this whole rate case is a do-over since the Settlement process was fatally flawed.

ACC Decision #75047 which shunted "smart" meter issues into this rate case stated:

> 6. Among the comments were allegations that smart meters adversely affect human health, that smart meters intrude upon individual privacy interests, that the costs of smart meter deployment do not outweigh the benefits, and that APS's proposed opt-out tariff rate is unreasonable.
> 16. The issues presented by APS's proposed opt-out tariff have attracted significant public attention. The comments that we have received from the public show that some individuals continue to be concerned about the various issues that may surround smart meters.
> 17. Although APS has presented its application as a tariff filing, **we think that these issues would benefit from the type of comprehensive review**

> **that is conducted in a general rate case.** A tariff filing proceeding, which is typically processed in a more abbreviated fashion, is ill-suited to address the issues presented herein.
> (emphasis added)

ACC Staff has not followed that Decision. In this proceeding the record is clear that Woodward is the one who has performed the "comprehensive review," not Staff. It is Woodward who has provided the evidence and expert witnesses, not Staff or APS. In light of that, the Commission should heed the result of Woodward's comprehensive review.

Woodward has proved "smart" meters are an abysmal failure from every standpoint – financial, human rights, efficiency, safety, security, and now scientific evidence shows unequivocally, health. Every day the ACC dawdles in its statutory responsibility to protect the public from "smart" meters brings a greater liability for all concerned. APS's unsubstantiated justifications for its "smart" grid, the denial, obfuscation and nonsense its witnesses engaged in, look increasing like the pathetic desperation and bluster of any industry under siege such as those of tobacco and asbestos.

"Smart" meters must be removed at once.

RESPECTFULLY SUBMITTED this 17th day of May, 2017.

By

Warren Woodward
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Original and 13 copies of the foregoing hand delivered on this 17th day of May, 2017 to:

Arizona Corporation Commission
Docket Control
1200 W. Washington St.
Phoenix, Arizona 85007

Copies of the foregoing mailed/emailed this 17th day of May, 2017 to:

Docket Service List

EXHIBIT A

Readers of this Brief's electronic copy will have to use this link:
https://www.youtube.com/watch?v=p-aNRQNRtaI&t=2s
or
search YouTube for *EKG Proof That "Smart" Meters Affect the Human Heart*

EXHIBIT B

Meter Sampling Checklist

Name of technician: L Rathbun RF Sampling Device: TM-195 / Calibration Date: _____

Please circle one for each option:

Single Family Home or Apartment Complex	Urban Area or Rural Area	Single meter or Multiple meters (# of meters: _____)

Background reading in the shade: _____ Background reading in the sun: _____

Address: 4105 E. Harley St.

Location of meter on home: garage or living space

Meter Model: Westinghouse Analog 1 meter

Comments:

Time period:		Sample Time 1		Sample Time 2		Sample Time 3	
Weather Condition (circle one):		Sunny / Partly Cloudy / Mostly Cloudy		Sunny / Partly Cloudy / Mostly Cloudy		Sunny / Partly Cloudy / Mostly Cloudy	
Reading Taken in Shade (Yes/No)		Yes / No		Yes / No 22		Yes / No	
Date and Time:		30 Jul '14 8:31		30 Jul '14 ~~10:45~~		12:22	
Readings		Average	Max	Average	Max	Average	Max
Distance 1 foot	*Measurement 1: (at 5 min)*	21.8	44.7	46.0 ~~40.9~~	63.1 ~~71.7~~	64.6	82.9
	Measurement 2: (at 10 min)	22.8	44.7	40.4	63.1	41.1	98.2
	Measurement 3: (at 15 min)	23.1	44.7	36.1	63.1	33.1	98.2

Address: 1633, 1635, 1638 ~~Hayle~~ N. Justin Ln

Location of meter on home: garage or living space

Meter Model: Itron, Itron, Schlumberger 3 Meters

Comments:

Time period:		Sample Time 1		Sample Time 2		Sample Time 3	
Weather Condition (circle one):		Sunny / Partly Cloudy / Mostly Cloudy		Sunny / Partly Cloudy / Mostly Cloudy		Sunny / Partly Cloudy / Mostly Cloudy	
Reading Taken in Shade (Yes/No)		Yes / No		Yes / No		Yes / No	
Date and Time:		30 Jul '14 8:47		30 Jul '14 10:38		30 Jul '14 12:39	
Readings		Average	Max	Average	Max	Average	Max
Distance 1 foot	*Measurement 1: (at 5 min)*	36.6	85.6	62.8	102.2	49.6	90.4
	Measurement 2: (at 10 min)	59.6	109.3	75.5	115.3	50.1	90.4
	Measurement 3: (at 15 min)	39.8	109.3	61.9	115.3	44.1	90.4

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Meter Sampling Checklist

Name of technician: L Rathbun RF Sampling Device: TM-195 / Calibration Date: _____

Please circle one for each option:

Single Family Home or Apartment Complex	Urban Area or Rural Area	Single meter or Multiple meters (# of meters: _____)

Σ from

Background reading in the shade: 12.00 Background reading in the sun: 15.283 uW/m²

Address: _____ Location of meter on home: garage or living space Pole near

Meter Model: _____

Time period	Sample Time 1		Sample Time 2		Sample Time 3	
Weather Condition (circle one):	Sunny / Partly Cloudy / Mostly Cloudy		Sunny / Partly Cloudy / Mostly Cloudy		Sunny / Partly Cloudy / Mostly Cloudy	
Reading Taken in Shade (Yes/No)	Yes / No		Yes / No		Yes / No	
Date and Time	10 Jul 14 13:03		11 Jul 14 8:38		11 Jul 14 10:52	
Readings	Average	Max	Average	Max	Average	Max
Distance 1 foot — Measurement 1: (at 5 min)	6.70	48.31	15.3 7.75	66.8	24.65	43.35
Measurement 2: (at 10 min)	7.95	49.76	13.5	66.8	34.38	43.73
Measurement 3: (at 15 min)	7.50	49.26	11.9	66.8	23.88	47.81

Comments: Raining, 1st sample

Address: 691 Cinch Dr. Location of meter on home: garage or living space Pole

Meter Model: _____

Time period	Sample Time 1		Sample Time 2		Sample Time 3	
Weather Condition (circle one):	Sunny / Partly Cloudy / Mostly Cloudy		Sunny / Partly Cloudy / Mostly Cloudy		Sunny / Partly Cloudy / Mostly Cloudy	
Reading Taken in Shade (Yes/No)	Yes / No		Yes / No		Yes / No	
Date and Time	10 Jul 14 14:38		11 Jul 14 9:02		11 Jul 14 11:32	
Readings	Average	Max	Average	Max	Average	Max
Distance 1 foot — Measurement 1: (at 5 min)	3.5	21.48	32.5	67.00	36.0	44.60
Measurement 2: (at 10 min)	23.0	129.17	33.01	67.10	38.4	47.1
Measurement 3: (at 15 min)	4.3	129.2	32.2	67.10	33.7	47.1

Comments: ABB (Analog) Rain - 1st sample

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EXHIBIT C

PRODUCT

TM-195 _ 3 - Axis RF Field Strength Meter

Model No.: : TM-195

Product Description

- RF range: 38mV to 20V/M
- Frequency range: 50MHz to 3.5GHz.
- Sensors: Triple Axis (X, Y, Z)
- Manual data memory (Max & AVG) records.
- Calibration factor, Alarm and Clock settings.

Q'ty : 1 Inquiry

Enlargement

Application | Specification

TM-195 is designed for measuring and monitoring Radio Frequency(RF) electromagnetic field strength and capable of measuring the frequency range of 50MHz~3.5GHz. It's ideal for the applications of:

- RF power measurement for transmitters.
- High frequency(RF)electromagnetic wave field strength measurement.
- Mobile phone base station antenna radiation power density measurement.
- Spy camera, wireless bug finder.
- Wireless communication (CW, TDMA, GSM, DECT) applications.
- Wireless LAN (Wi-Fi) detection, installation.
- Cellular /Cordless phone radiation safety level.
- Microwave oven leakage detection.
- Personal living environment EMF safety.

Back

6F, 586, RUI GUANG ROAD, NEIHU, TAIPEI, TAIWAN / TEL : 886-2-2658-5770 / FAX : 886-2-2658-5075 / E-mail: service@tenmars.com

EXHIBIT D

ONZO Announces Major Enhancements to Customer Insights Data Analytics Solution

09 Feb, 2016, 04:30 ET from ONZO

LONDON, February 9, 2016 /PRNewswire/ --

New Functionality Expands Both Macro and Micro Level Views of Energy Consumption

ONZO, a global provider of data science-based utility analytics solutions, announces a major enhancement to its ONZO Insight software. With the addition of new multi-level data mining capabilities, utilities can now combine and query data at much more granular level to more fully unlock the power of their smart meter and sensor data. Equally significant, with ONZO Insight, this can now be achieved with no need for deployment of specialized in-home hardware often required with competing analytics solutions. This new macro-level insight enhances the highly personalized understanding of household-level energy usage for which ONZO is well known.

"Millions of AMI data points and hundreds of thousands of additional metrics and values can now be combined and analyzed, taking utility customer data mining to a whole new level and driving decision-making capabilities that weren't even possible before," noted ONZO's chief data scientist Dr. Katie Russell.

Leveraging sophisticated new query functionality and the patented analytics embedded in the ONZO Insights platform, utilities have new options to explore multiple dimensions of data not only at a micro level for every individual customer, but also at a macro, customer group level - from neighborhoods, to entire service territories, to specified demographic clusters.

With this new functionality, utilities can quickly and accurately answer multi-faceted questions such as:

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- Which customers typically use high-consuming appliances during peak load times between 6 p.m. and 8 p.m. and should thus be contacted with a suggestion that they precool their home to prepare for a DR event?
- Where are the biggest concentration of customers that are most likely to respond to a smart thermostat offer based on analysis of occupancy, consumption and demographic characteristics?
- Which customer groups are mostly likely to respond to energy efficiency programs and what drivers are best at motivating a positive response?

"This new release brings considerable new flexibility to combine many different types of data and look across that data to drive much deeper insights into energy consumption patterns," commented Spencer Rigler, ONZO CEO. "And since it's these insights that feed and govern effective customer engagement, utilities can now enhance the customer experience and build the kinds of relationships that can only be achieved when you really bring your customers into strong focus."

About ONZO

ONZO is a global leader in consumer energy data and analytics. ONZO combines the science of energy analytics with disaggregation, lifestyle behavior analysis and probabilistic forecasting to give utilities and their customers unprecedented insights into how, where and when energy is used. Leveraging granular smart meter data, ONZO's patented algorithms result in rich, highly accurate, customer-specific insights with actionable outcomes that help utilities improve customer engagement and energy efficiency, while reducing churn and creating new revenue opportunities. Visit ONZO.com, and follow us on Twitter and LinkedIn.

SOURCE ONZO

EXHIBIT E

Mid-Atlantic Conference of Regulatory Utility Commissioners

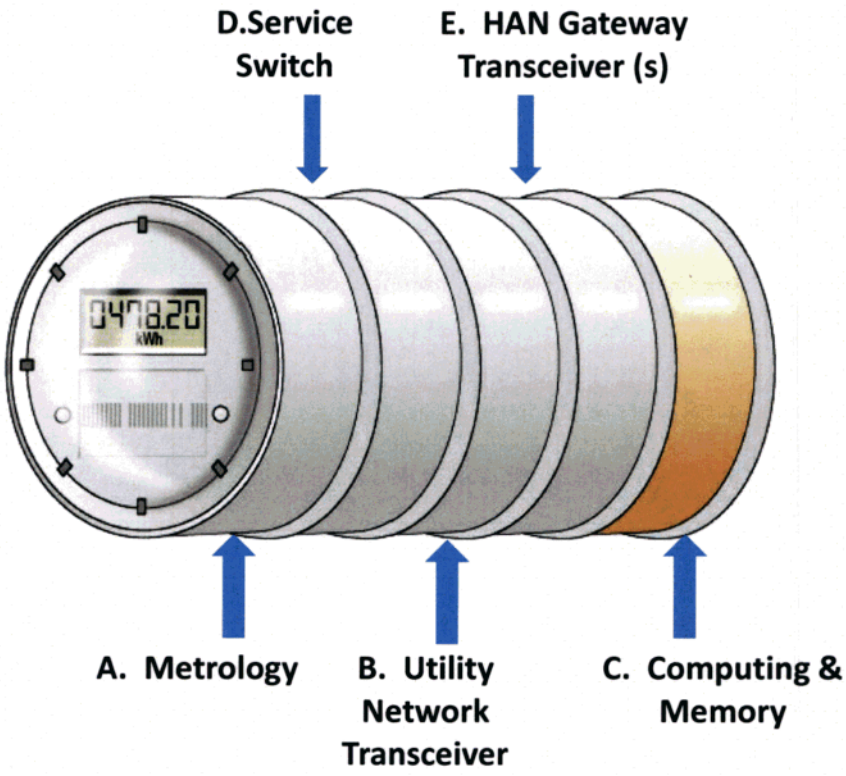
Smart Grid
Metering, Cost Recovery, Demand Response

June 28, 2010

Chuck Goldman, Project Manager
Electricity Markets and Policy Group
Lawrence Berkeley National Laboratory

Roger Levy, Levy Associates

4.51 Metering



4.52 Metering

Meter Function	Description
A. Metrology	Interval recording of usage.
B. Utility Network Transceiver (e.g. radio or plc)	Connects the meter via a network or multiple networks to the utility back office
C. Computing and Memory	• Supports meter computations, storage of interval data, storage of price or billing metrics, rating periods, billing parameters ,storage of customer usage, device , other data. • Support upgrades, bug fixes, security, etc.
D. Service Switch	• Remote connect / disconnect • Remote whole facility demand limiting
E. HAN Gateway Transceiver(s)	One or more transceivers to link the Utility Network Transceiver into the customer facility.

EXHIBIT F

SERVICE SCHEDULE 7
ELECTRIC METER TESTING AND MAINTENANCE PLAN

General Plan

This schedule establishes a meter maintenance and testing program for electric meters in order to ensure an acceptable degree of performance in the registration of the energy consumption of Arizona Public Service Company (Company) customers. Company will file an annual report with the Arizona Corporation Commission summarizing the results of the meter maintenance and testing program.

Specific Plan

1. Single-Phase Self Contained Meters - Non-Solid State Hybrids and Electro-Mechanical

   1.1 Meters shall be separated into groups having common physical attributes and the average performance of each group will be determined based on the weighted average of the meter's percentage registration at light load (LL) and at full load (FL) giving the full load registration a weight factor of four (4).

   1.2 Analysis of the test results for each group evaluated shall be done in accordance with the statistical formulas outlined in ANSI/ASQC Z1.9 – 1995 Formulas B-3, Tables A-1, A-2 and B-5. The minimum sample size shall be 100 meters when possible.

2. Single Phase Self Contained Meters – Solid State

   Company will monitor performance of these types of meters through the Company Metering and Billing systems.

3. Three Phase Self-Contained Meters - Non-Solid State Hybrids and Electro-Mechanical

   Company shall monitor installations with the following types of meters for accuracy and recalibrate as necessary according to the following schedule:

   3.1 Three-phase meters with surge-proof magnets and without demand registers or pulse initiators: 16 years.

   3.2 Three phase block-interval demand-register-equipped kWh meters with surge-proof magnets: 12 years.

   3.3 Three phase lagged-demand meters: 8 years.

4. Three Phase Self-Contained Meters – Solid State

   Company will monitor performance for these types of meters through the Company Metering and Billing systems.

5. Three Phase Transformer-Rated Meter Installations – Solid State Hybrids and Electro-Mechanical

   Company will conduct a periodic testing program whereby three phase transformer-rated meter installations along with their associated equipment shall be inspected and tested for accuracy according to the following schedule:

5.1 Installations with 500 to 1,000 kW load: 4 years.

5.2 Installations with 1001 kW to 2000 kW load: 2 years.

5.3 Installations over 2000 kW load: 1 year.